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A new species of *Terriera* (*Rhytismatales, Ascomycota*) on *Photinia villosa*

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Abstract — A new *Terriera* species, *T. aequabilis* on fallen leaves of *Photinia villosa* from the Mount Sanqingshan National Park, Jiangxi Province, China, is described, illustrated, and discussed. This taxon is distinguished from *T. cladophila* by smaller ascomata that are not associated with conidiomata, black thin zone lines, a well-developed excipulum, and unbranched paraphyses. The type specimen is deposited in the Reference Collection of Forest Fungi of Anhui Agricultural University, China (AAUF).

Key words — taxonomy, morphology, *Rhytismataceae*, *Rosaceae*

Introduction

Eriksson (1970) established the genus *Terriera* based on *T. cladophila* (Lév.) B. Erikss. (≡ *Hysterium cladophilum* Lév.), which produces a different paraphysial type and opening mechanism from genera *Lophodermium* Chevall. and *Sporomega* Corda. Minter (1996) provided a detailed description for *T. cladophila*. Johnston (2001), who systematically studied monocotyledon-inhabiting *Lophodermium*, divided that heterogeneous genus into five groups, one of which was transferred to *Terriera*. IndexFungorum (2014) lists 25 specific and two varietal epithets in *Terriera*.

Here, *Terriera aequabilis* on fallen leaves of oriental photinia from Jiangxi Province, China, is described as a new species.

Materials & methods

Mature ascomata were selected from the collected specimens. Under the dissecting microscope with a 10–50× magnification, the macroscopic appearance of ascomata and zone lines was observed. After rehydration of reference materials in water for 15 min., vertical transverse 10–15μm thick sections were sliced from ascomata using a freezing microtome and mounted in 0.5% (w/v) cotton blue in water for observing ascomatal outlines. Gelatinous sheaths surrounding ascospores and paraphyses were examined in water or 0.1% (w/v) lactophenol-cotton blue. The color of internal structures and ascospore contents were observed in water. Squash mounts were prepared in 5% KOH solution for measurements of asci, ascospores, and paraphyses. Figures of the external shapes and internal structures of the fruitbodies were drawn using a microscopic painting tube. The type specimen is deposited in the Reference Collection of Forest Fungi of Anhui Agricultural University, China (AAUF).

Taxonomy

Terriera aequabilis Qing Li & Y.R. Lin, sp. nov. FIGS 1–5

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Differs from *Terriera cladophila* by smaller ascomata not associated with conidiomata, frequent black and thin zone lines, a much thinner covering stroma, unbranched paraphyses swollen conspicuously at the apex, and ascospores with a visible mucous sheath.

TYPE: China, Jiangxi, Mount Sanqingshan National Park, Bingyudong, alt. 1550 m, on fallen leaves of *Photinia villosa* (Thunb.) DC. (*Rosaceae*), 21 August 2012, Y.R. Lin, S.J. Wang & L. Zhang 2657 (**Holotype**, AAUF 68765).

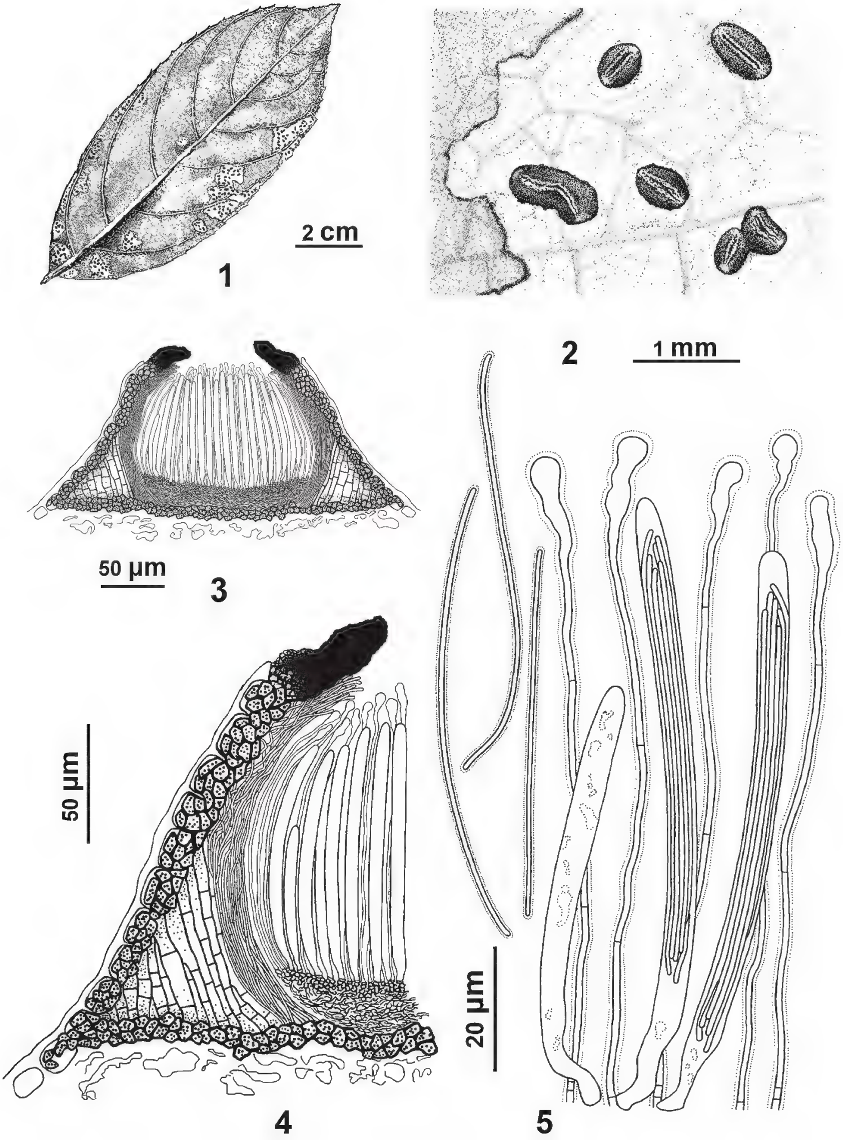
ETYMOLOGY: *aequabilis* (Latin = uniform), referring to the single ascospore, which has an equal diameter throughout its length.

COLONIES on both sides of leaves, forming distinct subcircular or irregular, yellow-brown bleached areas each with an obvious edge, 6–10 mm diam., which tend to coalesce into larger irregular shapes.

ZONE LINES usually frequent, dark brown or black, thin, entirely or partly surrounding the paler areas.

CONIDIOMATA not observed.

ASCOMATA developing on both sides of leaves, predominantly on the lower side, scattered over the pale areas, with two ascomata sometimes coalescent. In surface view, ascomata 320–720 × 250–430 µm, elliptical to subcircular, straight or slightly curved to one side, ends rounded. Whole surface of ascoma black, except sometimes for a paler region at each end, with a clearly defined edge, slightly shiny, moderately raising above the substrate surface but somewhat sunken near the split, opening by a single longitudinal split extending most of the length of the ascoma. Immature ascomata appearing as a single dark brown protrusion, more or less rotund in outline, not forming a pale zone along the future line of opening. In median transverse vertical section, ascomata subepidermal with epidermal cells becoming filled with fungal tissue as ascoma develops, 165–190 µm deep. COVERING STROMA 15–20 µm thick near the opening, becoming thinner towards the edge and connecting to the basal stroma, composed mainly of textura angularis with blackish-brown to dark brown, thick-walled cells 3–5.5 µm diam. Lip cells absent. Along the edge of the ascoma opening, there is a short extension, 10–18µm thick, adjacent



Figs 1–5. *Terriera aequabilis* (holotype, AAUF 68765) on *Photinia villosa* 1. Habit on a leaf. 2. Detail of ascomata and a zone line. 3. Ascoma in transverse vertical section. 4. Portion of ascoma in transverse vertical section. 5. Paraphyses, asci, and ascospores.

to the top of the covering stroma, which is comprised of strongly carbonized tissue with no obvious cellular structure. EXCIPULUM well-developed, 10–15 µm thick, arising from the inner layer of the basal stroma, septate, comprised of colorless textura porrecta-intricata with hyphae ca 0.8 µm diam., sometimes a reticular structure formed by the interlaced hyphae at the upper part. BASAL STROMA 6–10 µm thick, dark brown, consisting of 2(–3) layers of 3–5 µm diam., angular, thick-walled cells. Colorless to grayish-brown textura prismatica with cell 3–8.5 µm diam., 20–45 µm thick, existing in the triangular area, visible in sections between the covering and basal stroma at each edge of the ascoma. SUBHYMENIUM 15–22 µm thick, rather flat, consisting of hyaline textura-angularis and textura intricata. PARAPHYSES 1–1.3 µm wide, filiform, sparsely septate, not branched, gradually or suddenly swollen to 2.8–5 µm at the apex, extending ca 10 µm beyond asci, immersed in a ca 0.5 µm thick gelatinous matrix, hyphal bridges no observed at the base. ASCI maturing sequentially, cylindric-clavate, 75–105 × 4.5–5.5 µm, short-stalked, thin-walled, apex round or slightly obtuse, J-, 8-spored. ASCOSPORES arranged fasciculately, with a uniform diameter throughout the single ascospore, 55–78 × 0.8–1 µm, filiform, hyaline, aseptate, ends rounded, covered by a 0.3–0.5 µm thick gelatinous sheath.

ADDITIONAL SPECIMENS EXAMINED — On dead leaves of *Photinia villosa*: **CHINA, JIANGXI:** Mount Sanqingshan National Park, Huaiyushan, alt. ca 600 m, 18 August 2012, S.J. Wang & Y.R. Lin 2632 (AAUF 68740); Sanmucun, alt. ca 850 m, 20 August 2012, F. Zhou & L. Zhang 2645 (AAUF 68753); Yulinfeng, alt. ca 810 m, 21 August 2012, Y.R. Lin, S.J. Wang & L. Zhang 2704 (AAUF 68812).

COMMENTS — *Terriera aequabilis* is somewhat similar to the type species *T. cladophila* in the shape of ascomata, asci, and ascospores. However, *T. cladophila* occurs on dead or living twigs and has larger (350–900 × 300–600 µm) ascomata that are associated with conidiomata, a much thicker (≤40 µm) covering stroma composed of textura globulosa or angularis, paraphyses with frequently and irregularly branched and irregularly twisted swollen upper parts, sometimes with hyphal bridges at the base between adjacent paraphyses, ascospores without mucous sheath, and brown diffuse zone lines occasionally present (Minter 1996).

Terriera minor (Tehon) P.R. Johnst. [≡ *Lophodermium minus* (Tehon) P.R. Johnst.], the most widely distributed species, differs from the new species in oblong to oblong-elliptic, paraphyses branching 2–3 times in upper 30–40µm, extend 20–30 µm beyond asci and sometimes irregularly swollen at the apices, longer and wider (100–130 × 6–7 µm) asci that are tapering abruptly to small, rounded apex, wider (1.5–2 µm) ascospores slightly tapering towards both ends and 0–1-septate, and a poorly developed subhymenium (Johnston 1989). In addition, Tehon's (1918) observation that a thin, hyaline epithecium was formed by apically coiled paraphyses differs from Johnston's description.

The similar *Terriera simplex* Y.L. Lin et al. is distinguished from *T. aequabilis* by larger (650–1000 × 350–480 µm), sometimes triangular ascomata with conidiomata, a very poorly developed excipulum, wider (1.2–1.5 µm) paraphyses occasionally swollen to 2.5–3 µm near the apex, synchronously maturing asci with truncate to obtuse apices, and ascospores tapering to the rounded base (Gao et al. 2012).

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